

STATE OF COLORADO
COLORADO DEPARTMENT OF PUBLIC
HEALTH AND ENVIRONMENT

CALCULATING ANNUALIZED LEAK RATES

The information contained in this fact sheet apply to owners of commercial and industrial process refrigeration and air conditioning appliances containing more than **fifty (50) pounds** of an ozone depleting compound (ODC).

- Owners of commercial and industrial process refrigeration equipment must have all leaks repaired or develop a one-year retrofit or retirement plan within **thirty days** if the equipment is leaking at a rate such that the loss of refrigerant **will exceed 35% of the total charge during a 12 month period**. Industrial process sources are allowed additional provisions to comply with the leak rate compliance. Industrial processes are customized appliances used in the chemical, pharmaceutical, petrochemical and manufacturing industries. The equipment must be used to make a product and include sources such as ice rinks, electrical generation, etc.
- Repairs or retrofit/retirement plans are also required within **thirty days** for all air conditioning appliances (comfort cooling) if the leak rate **will exceed 15% of the total charge during a twelve (12) month period**.
- Leak rates are calculated on an **annualized** basis using the formula expressed below. The formula assumes that leak rates between a first and second additions of refrigerant (when repairs have not been made) will continue at that rate for 365 days. **It is incorrect to assume compliance with the leak rates by allowing appliances to leak up to the thresholds (15% and 35%) before repairs are initiated.**

Calculating a Leak Rate

1. Divide the number of pounds of refrigerant added to return the system to a full charge by the full operating charge.

$$\frac{\text{\# lbs. refrigerant added}}{\text{\# lbs. refrigerant in full charge}}$$

2. Divide the number of days that have passed between refrigerant additions, i.e., the number of days between the last time refrigerant was added and the most recent refrigerant addition (maximum of 365 days) by 365 days.

$$\frac{\text{\# days between refrigerant additions (up to 365 days max.)}}{365 \text{ days}}$$

Leak rate formula expressed as:

$$\text{LEAK RATE \%} = \frac{\text{\# lbs. refrigerant added}}{\text{\# lbs. of full charge}} \times \frac{365 \text{ days}}{\text{\# days between refrigerant additions}} \times 100$$

FOR ADDITIONAL INFORMATION PLEASE CALL (303) 692-3200

SEE OTHER SIDE FOR LEAK RATE TRACKING LOG

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LEAK RATE TRACKING LOG

Equipment location: _____

System identification: _____

System's full refrigerant charge in lbs: _____ lbs.

LBS. OF REFRIGERANT ADDED	DATE OF LAST REFRIGERANT ADDITION M/D/Y	DATE OF MOST RECENT REFRIGERANT ADDITION M/D/Y	# OF DAYS BETWEEN REFRIGERANT ADDITIONS	REPAIR DATE M/D/Y	CALCULATED <u>LEAK RATE</u> USE FORMULA

$$\text{LEAK RATE \%} = \frac{\text{\# lbs. refrigerant added}}{\text{\# lbs. of full charge}} \times \frac{365 \text{ days}}{\text{\# days between refrigerant additions}} \times 100$$

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